

Claims:

1. A method of regulating apoptosis in a cell, the method including the step of altering the expression and/or function in the cell of a polypeptide including an amino acid sequence selected from the group consisting of:
 - (a) an amino acid sequence of SEQ ID No. 4;
 - (b) an amino acid sequence of a biologically active fragment of a polypeptide having an amino acid sequence of SEQ ID No. 4;
 - and
 - (c) an amino acid sequence at least 90% identical to an amino acid sequence of SEQ ID No. 4, or a biologically active fragment thereof.
2. A method according to claim 1, wherein the cell is a neuronal cell.
3. A method according to claim 1, wherein the cell is a non-neuronal cell.
4. A method according to claim 3, wherein the non-neuronal cell is a non-neuronal cell selected from the group consisting of a non-neuronal cell present in neural and brain tissue, an intestinal cell including a goblet cell, a lymph node cell, a spleen cell, a liver cell, a thymic cell, a salivary gland cell, a pituitary cell, a bladder cell, a bone cell, a breast cell, a cervical cell, a colorectal cell, a kidney cell, a laryngeal cell, a blood cell, a lung cell, a lymphatic cell, a skin cell, a plasma cell, a muscle cell, a cell of the mouth or throat, an ovary, a pancreatic cell, a prostate cell, a stomach cell, a testicular cell, a germ cell, a thyroid cell, and an uterine cell.
5. A method according to claim 1, wherein the apoptosis is mediated by a neurotrophin receptor and/or binding of a neurotrophin to a receptor.

6. A method according to claim 5, wherein the neurotrophin receptor is p75NTR.
7. A method according to claim 1, wherein the apoptosis is associated with a disease or condition involving dysregulation of apoptosis.
8. A method according to claim 7, wherein the disease or condition is selected from the group consisting of viral diseases including AIDS; fulminant hepatitis; neurodegenerative diseases including Alzheimer's disease, Parkinson's disease; dementia; demyelination diseases; cancers in which dysregulation of apoptosis is associated with development of the cancerous phenotype; amyotrophic lateral sclerosis; retinitis pigmentosa; cerebellar degeneration; myelodysplasia including aplastic anemia; ischemic diseases including myocardial infarction and stroke; hepatic diseases including alcoholic hepatitis, hepatitis B and hepatitis C; joint diseases including osteoarthritis; and atherosclerosis.
9. A method of regulating apoptosis in a cell, the method including the step of expressing in the cell a nucleic acid including a nucleotide sequence selected from the group consisting of:
 - (a) a nucleotide sequence of SEQ ID No. 3, or RNA equivalent thereof;
 - (b) a nucleotide sequence at least 80% identical to a nucleotide sequence of SEQ ID No. 3, or RNA equivalent thereof;
 - (c) a nucleotide sequence complementary to SEQ ID No. 3, or RNA equivalent thereof;
 - (d) a nucleotide sequence at least 80% identical to a nucleotide sequence complementary to SEQ ID No. 3, or RNA equivalent thereof;
 - (e) a nucleotide sequence encoding a biologically active fragment of a polypeptide having an amino acid sequence of SEQ ID No. 4;
 - (f) a nucleotide sequence encoding an antisense nucleic acid that reduces the expression in the cell of a polypeptide including an

amino acid sequence of SEQ ID No. 4 or an amino acid sequence at least 90% identical to an amino acid sequence of SEQ ID No. 4; and

5 (g) a nucleotide sequence encoding a ribozyme that cleaves a mRNA encoding an amino acid of SEQ ID No. 4 or an amino acid sequence 90% identical to an amino acid sequence of SEQ ID No. 4.

10. A method according to claim 9, wherein the cell is a neuronal cell.
- 10 11. A method according to claim 9, wherein the cell is a non-neuronal cell.
12. A method according to claim 11, wherein the non-neuronal cell is a non-neuronal cell selected from the group consisting of a non-neuronal cell present in neural and brain tissue, an intestinal cell including a goblet cell, a lymph node cell, a spleen cell, a liver cell, a thymic cell, a salivary gland cell, a pituitary cell, a bladder cell, a bone cell, a breast cell, a cervical cell, a colorectal cell, a kidney cell, a laryngeal cell, a blood cell, a lung cell, a lymphatic cell, a skin cell, a plasma cell, a muscle cell, a cell of the mouth or throat, an ovary, a pancreatic cell, a prostate cell, a stomach cell, a testicular cell, a germ cell, a thyroid cell, and an uterine cell.
- 15 20 13. A method according to claim 9, wherein the apoptosis is mediated by a neurotrophin receptor and/or binding of a neurotrophin to a receptor.
- 25 14. A method according to claim 13, wherein the neurotrophin receptor is p75NTR.
- 30 15. A method according to claim 9, wherein the apoptosis is associated with a disease or condition involving dysregulation of apoptosis.

16. A method according to claim 15, wherein the disease or condition is selected from the group consisting of viral diseases including AIDS; fulminant hepatitis; neurodegenerative diseases including Alzheimer's disease, Parkinson's disease; dementia; demyelination diseases; cancers in which dysregulation of apoptosis is associated with development of the cancerous phenotype; amyotrophic lateral sclerosis; retinitis pigmentosa; cerebellar degeneration; myelodysplasia including aplastic anemia; ischemic diseases including myocardial infarction and stroke; hepatic diseases including alcoholic hepatitis, hepatitis B and hepatitis C; joint diseases including osteoarthritis; and atherosclerosis.
17. A method of regulating proliferation of a cell, the method including the step of altering the expression and/or function in the cell of a polypeptide including an amino acid sequence selected from the group consisting of:
 - (a) an amino acid sequence of SEQ ID No. 4;
 - (b) an amino acid sequence of a biologically active fragment of a polypeptide having an amino acid sequence of SEQ ID No. 4 and
 - (c) an amino acid sequence at least 90% identical to an amino acid sequence of SEQ ID No. 4, or biologically active fragment thereof.
18. A method according to claim 17, wherein the cell is a neuronal cell.
19. A method according to claim 17, wherein the cell is a non-neuronal cell.
20. A method according to claim 19, wherein the non-neuronal cell is a non-neuronal cell selected from the group consisting of a non-neuronal cell present in neural and brain tissue, an intestinal cell including a goblet cell, a lymph node cell, a spleen cell, a liver cell, a thymic cell, a salivary gland cell, a pituitary cell, a bladder cell, a bone cell, a breast cell, a cervical cell, a colorectal cell, a kidney cell, a laryngeal cell, a blood cell, a lung cell, a lymphatic cell, a skin cell, a plasma cell, a muscle cell, a

cell of the mouth or throat, an ovary, a pancreatic cell, a prostate cell, a stomach cell, a testicular cell, a germ cell, a thyroid cell, and an uterine cell.

- 5 21. A method according to claim 17, wherein the proliferation is mediated by a neurotrophin receptor and/or binding of a neurotrophin to a receptor.
- 10 22. A method according to claim 21, wherein the neurotrophin receptor is p75NTR.
23. A method of regulating proliferation of a cell, the method including the step of expressing in the cell a nucleic acid including a nucleotide sequence selected from the group consisting of:
 - 15 (a) a nucleotide sequence of SEQ ID No. 3, or RNA equivalent thereof;
 - (b) a nucleotide sequence at least 80% identical to a nucleotide sequence of SEQ ID No. 3, or RNA equivalent thereof;
 - (c) a nucleotide sequence complementary to SEQ ID No. 3, or RNA
20 equivalent thereof;
 - (d) a nucleotide sequence at least 80% identical to a nucleotide sequence complementary to SEQ ID No. 3, or RNA equivalent thereof;
 - (e) a nucleotide sequence encoding a biologically active fragment of
25 a polypeptide having an amino acid sequence of SEQ ID No. 4;
 - (f) a nucleotide sequence encoding an antisense nucleic acid that reduces the expression in the cell of a polypeptide including an amino acid sequence of SEQ ID No. 4 or an amino acid sequence at least 90% identical to an amino acid sequence of
30 SEQ ID No. 4; and
 - (g) a nucleotide sequence encoding a ribozyme that cleaves a mRNA encoding an amino acid of SEQ ID No. 4 or an amino acid

sequence 90% identical to an amino acid sequence of SEQ ID No. 4.

24. A method according to claim 23, wherein the cell is a neuronal cell.
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25. A method according to claim 23, wherein the cell is a non-neuronal cell.
26. A method according to claim 25, wherein the non-neuronal cell is non-neuronal cell selected from the group consisting of a non-neuronal cell present in neural and brain tissue, an intestinal cell including a goblet cell, a lymph node cell, a spleen cell, a liver cell, a thymic cell, a salivary gland cell, a pituitary cell, a bladder cell, a bone cell, a breast cell, a cervical cell, a colorectal cell, a kidney cell, a laryngeal cell, a blood cell, a lung cell, a lymphatic cell, a skin cell, a plasma cell, a muscle cell, a cell of the mouth or throat, an ovary, a pancreatic cell, a prostate cell, a stomach cell, a testicular cell, a germ cell, a thyroid cell, and an uterine cell.
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27. A method according to claim 23, wherein the proliferation is mediated by a neurotrophin receptor and/or binding of a neurotrophin to a receptor.
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28. A method according to claim 27, wherein the neurotrophin receptor is p75NTR.
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29. An agent for regulating cell apoptosis and/or proliferation, wherein the administration of an effective amount of the agent to a cell alters the expression and/or function in the cell of a polypeptide including an amino acid sequence selected from the group consisting of:
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- (a) an amino acid sequence of SEQ ID No. 4;
 - (b) an amino acid sequence of a biologically active fragment of a polypeptide having an amino acid sequence of SEQ ID No. 4;
- and

- (c) an amino acid sequence at least 90% identical to an amino acid sequence of SEQ ID No. 4, or a biologically active fragment thereof.

- 5 30. An agent according to claim 29, wherein the agent is an antisense nucleic acid.
31. A composition for regulating apoptosis and/or cell proliferation, the composition including a polypeptide including an amino acid sequence
- 10 selected from the group consisting of:
- (a) an amino acid sequence of SEQ ID No. 4;
 - (b) an amino acid sequence of a biologically active fragment of a polypeptide having an amino acid sequence of SEQ ID No. 4; and
 - 15 (c) amino acid sequence at least 90% identical to an amino acid sequence of SEQ ID No. 4, or a biologically active fragment thereof.
32. An antibody raised against a polypeptide including an amino acid
- 20 sequence selected from the group consisting of:
- (a) an amino acid sequence of SEQ ID No. 4;
 - (b) an amino acid sequence encoding a biologically active fragment of a polypeptide having an amino acid sequence of SEQ ID No. 4;
 - 25 (c) an amino acid sequence at least 90% identical to an amino acid sequence of SEQ ID No. 4, or a biologically active fragment thereof; and
 - (d) an amino acid sequence encoding an immunogenic fragment of a polypeptide having an amino acid sequence of SEQ ID No. 4.
- 30 33. An antibody that detects a polypeptide including an amino acid sequence selected from the group consisting of:
- (a) an amino acid sequence of SEQ ID No. 4;

- (b) an amino acid sequence encoding a biologically active fragment of a polypeptide having an amino acid sequence of SEQ ID No. 4;
 - (c) an amino acid sequence at least 90% identical to an amino acid sequence of SEQ ID No. 4, or a biologically active fragment thereof; and
 - (d) an amino acid sequence encoding an immunogenic fragment of a polypeptide having an amino acid sequence of SEQ ID No. 4.
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- 10 34. An antisense nucleic acid that reduces the expression in a cell of a polypeptide including an amino acid of SEQ ID NO:4 or an amino acid sequence at least 90% identical to an amino acid sequence of SEQ ID NO. 4